

LISTING OF CLAIMS

1. (Previously presented) Electronic microwave circuit comprising:

GaAs field-effect transistors integrated onto a semiconductor substrate, for switching electronic high frequency input signals;

at least one light source for illuminating the GaAs field-effect transistors wherein at least one of the intensity of the light source and the color of the light source may be changed during operation; and,

a control device which controls or regulates the intensity and/or the color of the light source dependent upon at least one measurement variable or a combination of measurement variables.

2. (Previously presented) Electronic microwave circuit according to claim 1, wherein the light source is able to illuminate in different colors alternately or simultaneously.

3. (Canceled)

4. (Canceled)

5. (Previously presented) Electronic microwave circuit according to claim 1, wherein the measurement variables are selected from the group consisting of:

the polarity of a signal voltage of a high frequency signal to be switched, relative to a control voltage with which the field-effect transistors are controlled,

the size of a signal voltage of a high frequency signal to be switched, relative to a control voltage with which the field-effect transistors are controlled,

the temperature of the field-effect transistors

the size of a signal voltage of a high frequency signal to be switched,
and

the level of a signal frequency of a high frequency signal to be
switched.

6. (Previously presented) Electronic microwave circuit according to claim 1, wherein the control device controls or regulates the intensity and/or color of the light source in such a manner that the switching times of the field-effect transistors remain constant over an entire range of values of measurement variables used that occur in operation.

7. (Previously presented) Electronic microwave circuit according to claim 6, wherein the intensity of the light is selected to be just large enough and/or the wavelength of the light color is optimized to be as small as possible or as energetic as possible.

8. (Previously presented) Electronic microwave circuit according to claim 6, wherein the switching times of the field-effect transistors are minimized.

9. (Previously presented) Electronic microwave circuit according to claim 1, wherein the control device comprises a store in which a optimum intensity and/or color of the light source dependent upon the values of the measurement variables used is stored for a plurality of values of the measurement variables, and wherein the control device sets or controls or regulates the intensity and/or the color of the respective light source, based on the values stored in the store of the measurement variables used.

10. (Previously presented) Electronic microwave circuit according to claim 1, comprising at least one sensor in the region of the respective GaAs field-effect transistor and of the respective semiconductor substrate, for detecting the light intensity and/or the temperature.

11. (Previously presented) Electronic microwave circuit according to claim 1, comprising a damping circuit with damping which can be switched in steps.

12. (Previously presented) Calibrating device for calibrating the intensity and/or color of a light source of an electronic microwave circuit, the intensity and/or color of said light source being changeable during operation, said microwave circuit comprising GaAs field-effect transistors illuminable by the light source, with a signal generator for generating high frequency input signals to a calibrating output, via which the high frequency input signals are fed to an input of the microwave circuit, with a calibrating input via which the high frequency signals altered by the microwave circuit are fed again to the calibrating device, with a control unit, for controlling the light source and the switching processes of the microwave circuit via a calibrating connection, and of the signal generator, whereby the control unit evaluates high frequency output signals input via the calibrating input and places the result of the evaluation in a store of the microwave circuit.

13. (Previously presented) Calibrating device according to claim 12, comprising a control connection for controlling a cooling/heating system for cooling or heating the field-effect transistors.

14. (Previously presented) Method for operating a calibrating device on a microwave circuit comprising GaAs field-effect transistors integrated onto a semiconductor substrate, for switching electronic high frequency input signals and at least one light source for illuminating the GaAs field-effect transistors wherein at

least one of the intensity of the light source and the color of the light source may be changed during operation, said method comprising:

- (a) stepwise adjusting and detecting the influencing variables comprising
 - intensity and/or color of the light source of the microwave circuit and at least one measurement variable selected from the group consisting of:
 - the polarity of the signal voltage of the high frequency signal to be switched, relative to the control voltage with which the field-effect transistors are controlled,
 - the size of the signal voltage of the high frequency signal to be switched, relative to the control voltage with which the field-effect transistors are controlled,
 - the temperature of the field-effect transistors,
 - the level of the signal voltage of the high frequency signal to be switched, and
 - the level of the signal frequency of the high frequency signal to be switched;
- (b) storing the value combinations or of the value tuples of the changed and detected values of the influencing variables and of the measurement variables;
- (c) evaluating the value combinations or value tuples; and
- (d) transferring the evaluation results to the microwave circuit.

15. (Previously presented) Method according to claim 14, comprising evaluating the value combinations or value tuples such that an n-dimensional table is generated from which for each combination of the individual values of the measured measurement variables, the respective values of optimal light intensity and/or optimal light color can be read out.